



The Role of NGVs in Dallas/Fort Worth International Airport's Clean Air Program

Natural Gas Vehicle Technology Forum
Technical Committee Meeting
DFW, Texas

January 28- 29, 2003
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“Action without philosophy is a lethal weapon; philosophy without action is worthless”

Soichiro Honda



NGVs at DFW Airport

Presentation Outline

- Early Initiatives
- Key Partners
- Current Program
- Why NGVs?
- Fleet Conversion Status and Forecast
- Fleet Applications
- Funding Assistance
- Fueling Infrastructure
- Future Plans and Challenges



NGVs at DFW Airport

Early Initiatives

- AFV Pilot Programs (after-market conversions, 1991, 1995)
- Clean Cities MOU (1995)
- AFV Implementation Study (DFW, DOE, MPO, 1998)
- Board fleet integration (1999)
- Contract requirements (Airline Employee Shuttle Services, 1999)
- Tenant Programs (Super Shuttle, AA, USPS)
- Ground Transportation program revisions (1999)



NGVs at DFW Airport

Key Partners

- North Central Texas Council of Governments
- Clean Cities Coalition
- Department of Energy
- Ford Motor Company
- American Honda
- Caterpillar
- Cummins

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e Energy



NGVs at DFW Airport

Current Program

- Fuel Neutral, Emissions Based
- Centralized fleet planning, acquisition and disposal
- Contract requirements
- Regulated fleets
- Leverage grant funding



NGVs at DFW Airport

Why NGVs?

- Widest array of OEM products available for DFW fleet applications
- Local refueling infrastructure
- Local service network
- Airport Maintenance staff familiarization

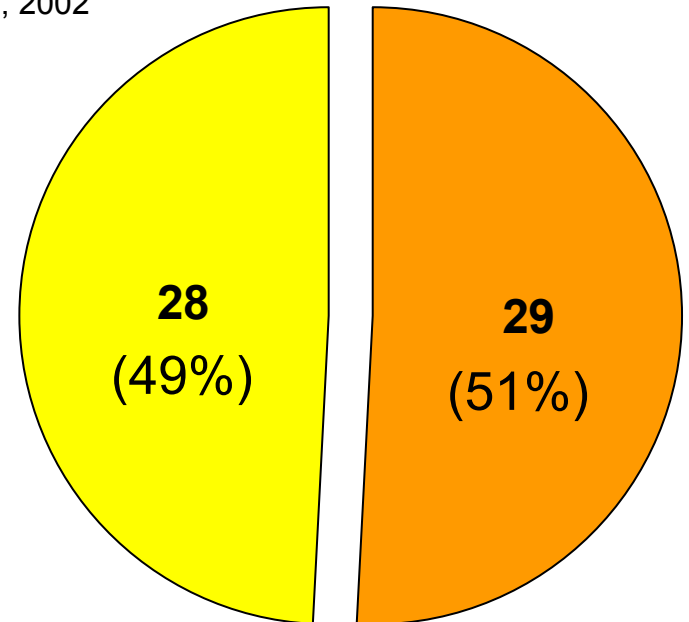
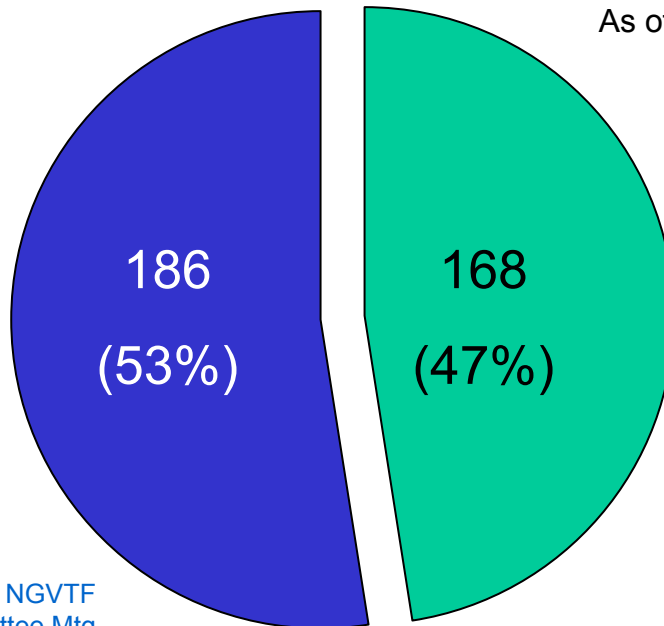
NGVs at DFW Airport

Fleet Conversion Status and Forecast

Light & Medium Duty Vehicles

Buses & Shuttle Vans

As of August 26, 2002



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Non AFV

AFV

Non AFV

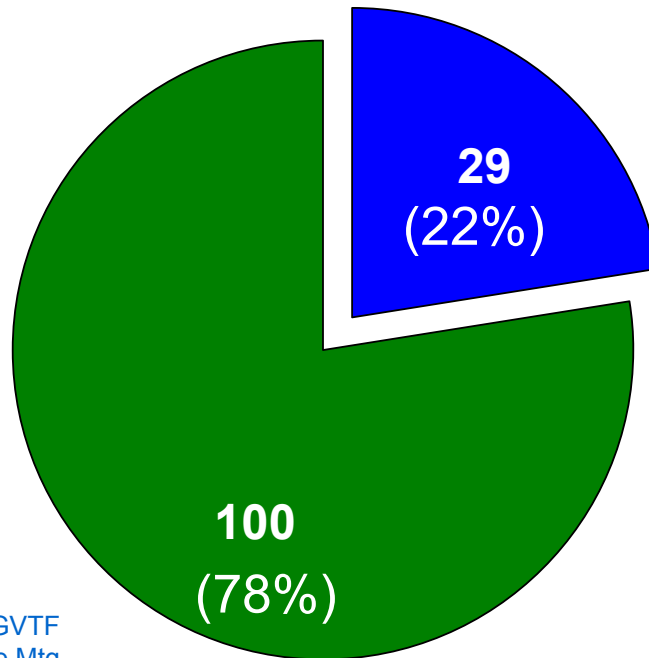
AFV



NGVs at DFW Airport

Fleet Conversion Status and Forecast

Heavy Duty & Off-Road Vehicles



Clean Vehicles on Order:

- 28 Light & Medium Duty
 - 28 Buses & Shuttle Vans
 - 22 Heavy Duty & Off Road
- As of August 26, 2002

FY2004 Plan

100% Light & Medium Duty
72% of Heavy Duty & Off Road

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Non AFV

AFV



NGVs at DFW Airport

Fleet Applications



- Honda Civic GX dedicated CNG
 - Airfield escort service, general staff use, DPS command staff, CID
- Ford Crown Victoria dedicated CNG
 - Police units, fire units, general staff use



NGVs at DFW Airport Fleet Applications



- Ford F150/250 pickups (all body styles)
 - Maintenance, Airfield Agents, Construction Inspectors, Project Engineers
- E-series vans
 - Maintenance, Delivery



NGVs at DFW Airport

Fleet Applications



- 2001 Freightliner 2-1/2 Ton Dump Truck/Plow, Class 7, Caterpillar 3126 duel fuel engine
- 2002 Freightliner 5 Ton Dump Truck/Plow, Class 8, Caterpillar 3126 duel fuel engine

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NGVs at DFW Airport Fleet Applications



- Al-Tec model AA600P 51 foot bucket truck, Caterpillar 3126 dual fuel engine
- 2001 Batts Deicing Fluid Application Vehicle, Freightliner Class 8 chassis, Caterpillar C12 dual fuel engine

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NGVs at DFW Airport Fleet Applications



- 2001 Explosive Ordnance Disposal vehicle, Freightliner chassis, dedicated CNG, 8.3L Cummins, 33,000 GVWR
- 2001 Special Reaction Team LDV truck, Freightliner chassis, dedicated CNG 5.9L Cummins, 29,000 GVWR

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NGVs at DFW Airport Fleet Applications



- 1998 Champion Buses, 30 foot class, dedicated CNG 5.9L Cummins, 31,000 GVWR
- 2000 El Dorado National Buses, 30 foot class, dedicated CNG 8.3L Cummins, 34,000 GVWR

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NGVs at DFW Airport Fleet Applications



- John Deere/Bachman Agricultural Tractor, dual fuel
- 2002 Tymco Sweeper, Isuzu chassis, dedicated CNG 350 CID GMC, dedicated CNG Ford 4-cylinder auxiliary power unit



NGVs at DFW Airport Fleet Applications



- Ford E-series Cutaway Shuttle Vans, dedicated CNG



NGVs at DFW Airport Fleet Applications



- Super Shuttle shared ride service provider
- Total Enterprise employee transportation service provider

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NGVs at DFW Airport

Funding Assistance

- CMAQ projects
 - 2 projects approved, light duty Board fleet vehicles (\$3.762M)
 - 1 private sector project sponsored and approved (\$1.0M)
 - 1 project submitted for RAC/Shuttle buses (\$1.38M)
- DOE 2002 State Energy Program project
 - Heavy Duty Vehicle project pending (4 units, \$70K)
- Texas Emission Reduction Plan (TERP project)
 - 1st call under TERP for Heavy Duty Vehicles, DFW project approved (2 units, \$66K)
 - 2nd call under TERP for Heavy Duty Vehicles, DFW project approved (3 units, \$108K)



NGVs at DFW Airport Fueling Infrastructure

Public Access CNG Refueling Station



- Dual hose/dual pressure
- Three bank storage - 36,000 scf
- 725 cfm compressor



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NGVs at DFW Airport

Fueling Infrastructure

Public Access CNG Refueling Station

- Public/private venture
- Competitive bid solicitation
- Privately owned/operated
- 10 year contract with DFW Airport Board
- Ground lease executed with DFW Board
- DFW Airport Board guarantees annual minimum volume
- Pricing at index plus margin
- Discount to Board for sales to non-Board users
- Board fleet CNG consumption @ 293,503 gge
- Other fleets CGN consumption @ 268,141 gge



NGVs at DFW Airport

Future Plans and Challenges

Plans

- **Commercial Ground Transportation Clean Vehicle Plan**
- **Refueling infrastructure expansion and decentralization**



NGVs at DFW Airport

Future Plans and Challenges

Challenges

- Product availability
 - Heavy Duty and Off-Road
 - Impact of Tier 2 and Tier 3 emission standards
- Funding
- Non-Board fleet penetration



Dallas/Fort Worth International Airport's Use of NGVs to Reduce Air Emissions

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